

What is claimed is:

1. A CAD system which processes a two-dimensional design plane/three-dimensional design space configured
5 by referring to another two-dimensional design plane/three-dimensional design space, comprising:
an intra-model correspondence management unit managing correspondence between a two-dimensional design plane and a three-dimensional design space for
10 the same target; and
an inter-model reference management unit managing reference between models configured by at least one two-dimensional design plane and three-dimensional design space for the same target.
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2. The CAD system according to claim 1, wherein said correspondence is a spatial attribute of each two-dimensional design plane in a model.
- 20 3. The CAD system according to claim 1, further comprising:
an automatic assembly unit generating three-dimensional reference between a three-dimensional design space of a first model and a three-dimensional
25 design space of a second model according to two-

dimensional reference of a plurality of two-dimensional design planes belonging to the first model to a two-dimensional design plane belonging to the second model, correspondence in the first model, and
5 correspondence in the second model.

4. The CAD system according to claim 3, wherein
said automatic assembly unit automatically
assembles a three-dimensional design space belonging
10 to the first model using two-dimensional reference of
a plurality of two-dimensional design planes belonging
to the first model, and the correspondence in the
first model.

15 5. The CAD system according to claim 4, wherein
said automatic assembly unit, sequentially from
a model in a lowest hierarchical level in reference,
determines a placement vector in a referenced-from
three-dimensional design space from correspondence in
20 a referenced-from model determines a reference vector
in a three-dimensional design space of the referenced-
to model from correspondence in a referenced-to model,
generates a conversion matrix of the placement vector
and the reference vector, and assembles a three-
25 dimensional design space of the referenced-from model

based on the conversion matrix.

6. The CAD system according to claim 1, wherein
when one of the two-dimensional reference and the
5 three-dimensional reference is performed between the
models, said inter-model reference management unit
performs other two-dimensional reference and three-
dimensional reference between the models corresponding
to a prior referencing operation.
- 10 7. The CAD system according to claim 6, wherein
said inter-model reference management unit
automatically performs the other two-dimensional
reference and three-dimensional reference between the
15 models corresponding to the prior referencing
operation.
- 20 8. The CAD system according to claim 6, wherein
said inter-model reference management unit
performs the other two-dimensional reference and
three-dimensional reference between the models
interactively with a designer corresponding to the
prior referencing operation.
- 25 9. The CAD system according to claim 6, wherein

said inter-model reference management unit notifies a designer of consistency corresponding to the prior referencing operation.

5 10. The CAD system according to claim 1, further comprising

10 a new reference setting unit setting consistent reference, when new reference is set between a first design plane/space which is one of a two-dimensional design plane or a three-dimensional design space belonging to a third model and a second design plane/space which is one of a two-dimensional design plane or a three-dimensional design space belonging to a fourth model, between a two-dimensional design plane and a three-dimensional design space other than the first design plane/space belonging to the third model and a two-dimensional design plane and a three-dimensional design space other than the second design plane/space belonging to the fourth model based on the new reference, the correspondence in the third model, and the correspondence in the fourth model.

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11. The CAD system according to claim 1, wherein
a plurality of two-dimensional design
25 planes/three-dimensional design spaces belonging to

the model are specified to be edited based on the correspondence in the model.

12. The CAD system according to claim 1, wherein
5 when an element specified in a two-dimensional design plane or a three-dimensional design space belonging to a fifth model is moved to a newly generated sixth model, said inter-model reference management unit sets inter-model reference between the
10 fifth model and the sixth model.

13. The CAD system according to claim 12, wherein
when said sixth model is generated, said intra-model correspondence management unit sets intra-model
15 correspondence of the sixth model.

14. The system according to claim 12, wherein
when said sixth model is generated, a designer
is instructed to maintain spatial consistency of each
20 of the two-dimensional design planes and the three-dimensional design spaces belonging to the sixth model.

15. A cooperative system which maintains cooperation
25 of graphics data between a two-dimensional CAD and a

three-dimensional CAD, comprising:

an intra-model correspondence management unit managing correspondence between a two-dimensional design plane by a two-dimensional CAD and a three-dimensional design space by a three-dimensional CAD
5 for the same target; and

an inter-model reference management unit managing reference between models configured by at least one two-dimensional design plane and three-dimensional design space for the same target.
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16. The cooperative system according to claim 15, further comprising

a three-dimensional reference generation unit generating three-dimensional reference between a three-dimensional design space of the first model and a three-dimensional design space of the second model according to two-dimensional reference of a plurality of two-dimensional design planes belonging to a first model to a two-dimensional design plane belonging to a second model, correspondence in the first model, and correspondence in the second model.
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17. The cooperative system according to claim 16, wherein
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said automatic assembly unit automatically assembles a three-dimensional design space belonging to the same model using two-dimensional reference of a plurality of two-dimensional design planes belonging to the same model, and the correspondence in the model.

18. A CAD system which processes a two-dimensional design plane/three-dimensional design space configured by referring to another two-dimensional design plane/three-dimensional design space, comprising:

intra-model correspondence management means for managing correspondence between a two-dimensional design plane and a three-dimensional design space for the same target; and

inter-model reference management means for managing reference between models configured by at least one two-dimensional design plane and three-dimensional design space for the same target.

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19. A cooperative system which maintains cooperation of graphics data between a two-dimensional CAD and a three-dimensional CAD, comprising:

intra-model correspondence management means for managing correspondence between a two-dimensional

design plane by a two-dimensional CAD and a three-dimensional design space by a three-dimensional CAD for the same target; and

inter-model reference management means for
5 managing reference between models configured by at least one two-dimensional design plane and three-dimensional design space for the same target.

20. A method of managing CAD data comprising:
10 managing correspondence between a two-dimensional design plane and a three-dimensional design space for the same target; and

managing reference between models configured by a two-dimensional design plane and a three-dimensional
15 design space for the same target.

21. The method according to claim 20, wherein
said correspondence is a spatial attribute of each two-dimensional design plane in a model.

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22. The method according to claim 20, wherein
three-dimensional reference is set between a three-dimensional design space of a first model and a three-dimensional design space of a second model
25 according to two-dimensional reference of a plurality

of two-dimensional design planes belonging to the first model to a two-dimensional design plane belonging to the second model, correspondence in the first model, and correspondence in the second model.

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23. A computer-readable storage medium storing a program used to direct a computer to perform:

managing correspondence between a two-dimensional design plane and a three-dimensional design space for the same target; and

managing reference between models configured by a two-dimensional design plane and a three-dimensional design space for the same target.

24. The medium storing a program used to direct a computer to perform according to claim 23:

setting three-dimensional reference between a three-dimensional design space of a first model and a three-dimensional design space of a second model according to two-dimensional reference of a plurality of two-dimensional design planes belonging to the first model to a two-dimensional design plane belonging to the second model, correspondence in the first model, and correspondence in the second model; and

The first two points are the most important. The first is that the system is designed to be as simple as possible. The second is that the system is designed to be as flexible as possible.